AMENDMENTS TO THE CLAIMS

1. (Previously Presented) An ethylene-based polymer which is a copolymer obtained from ethylene and a C3 to C10 α-olefin and satisfies the following requirements (i), (ii), (iii), (iv) and (vii) simultaneously:

(i) melt flow rate [MFR_2 (g/10 min)] under a loading of 2.16 kg at 190°C is in the range of 0.1 to 5,

(ii) melt tension [MT (g)] and the above melt flow rate [MFR_2 (g/10 min)] satisfy the following relationship (Eq-3):

$$8.0\times MFR_2^{-0.53} \geq MT \geq 3.6\times MFR_2^{-0.53} \quad \text{---(Eq-3)}$$

(iii) an activation energy [Ea] of fluidization is less than 30 (KJ/mol),

(iv) swell ratio is 1.36 or more, and

(vii) melt flow rate [MFR_{20} (g/10 min)] at 190°C under a loading of 21.6 kg is in the range of 2 to 30, and intrinsic viscosity ([η] (dl/g)) and the melt flow rate [MFR_{20} (g/10 min)] satisfy the following equation (Eq-5):

$$-1.3 \log (MFR_{20}) + 3.5 \leq [\eta] \leq -1.3 \log (MFR_{20}) + 4.35 \quad \text{---(Eq-5).}$$

2. (Previously Presented) A method for producing an ethylene-based polymer satisfying the following requirements (i), (ii), (iii) and (iv) simultaneously:

(i) melt flow rate [MFR_2 (g/10 min)] under a loading of 2.16 kg at 190°C is in the range of 0.01 to 10,

(ii) melt tension [MT (g)] and the above melt flow rate [MFR_2 (g/10 min)] satisfy the following relationship:

$MT \geq 3.2 \times MFR_2^{-0.53}$

(iii) an activation energy [Ea] of fluidization is less than 30 (KJ/mol), and

(iv) swell ratio is 1.36 or more,

by copolymerizing ethylene with a C3 to C10 α-olefin, in the presence of a solid catalyst component carried on (C) a solid carrier:

(A1) a group 4 transition metal compound presented by the general formula [I] below,

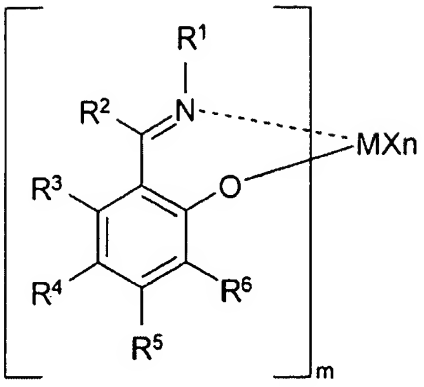
(A2) a group 4 transition metal compound represented by the general formula [II] below, and

(B) at least one compound selected from the group consisting of:

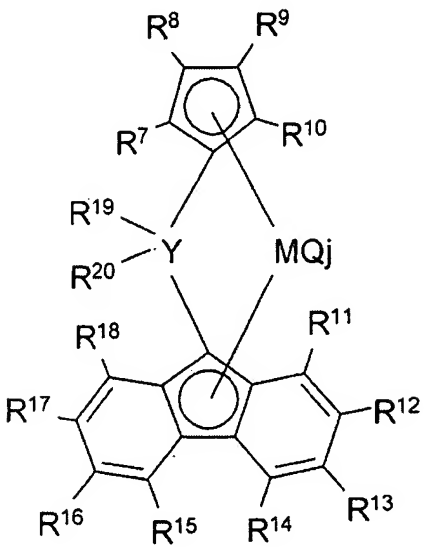
(b-1) an organometallic compound,

(b-2) an organoaluminum oxy compound, and

(b-3) a compound reacting with the transition metal compound (A1) or (A2) to form an ion pair,



where M represents a transition metal atom in the group 4 in the periodic table, m represents an integer of 1 to 4, R^1 represents a branched or linear aliphatic hydrocarbon group or an optionally substituted alicyclic hydrocarbon group, R^2 to R^6 may be the same or different and each represent a hydrogen atom, a halogen atom, a hydrocarbon group, a heterocyclic compound residue, an oxygen-containing group, a nitrogen-containing group, a boron-containing group, a sulfur-containing group, a phosphorus-containing group, a silicon-containing group, a germanium-containing group or a tin-containing group, two or more of which may be bound to one another to form a ring, and when m is 2, two of the groups represented by R^2 to R^6 may be bound to each other provided that R^1's shall not be bound to each other, and n is a number satisfying the valence of M, X represents a hydrogen atom, a halogen atom, a hydrocarbon group, an oxygen-containing group, a sulfur-containing group, a nitrogen-containing group, a boron-containing group, an aluminum-containing group, a phosphorus-containing group, a halogen-containing group, a heterocyclic compound residue, a silicon-containing group, a germanium-containing group or a tin-containing group, and when n is 2 or more, a plurality of groups represented by X's may be the same or different, and a plurality of groups represented by X's may be bound to one another to form a ring,



[II]

where R^7 to R^{20} are selected from hydrogen, a hydrocarbon group and a silicon-containing group, and may be the same or different, adjacent substituents R^7 to R^{20} may be bound to each other to form a ring, M is a group 4 transition metal atom, Y is a group 14 atom, Q may be selected in the same or different combination from a halogen, a hydrocarbon group, an anion ligand, and a neutral ligand capable of coordination with a lone pair of electrons, j is an integer of 1 to 4, at least one of R^{19} and R^{20} is an unsubstituted aryl group or a substituted aryl group, and when both R^{19} and R^{20} are either unsubstituted aryl groups or substituted aryl groups, R^{19} and R^{20} may be the same or different.

3. (Previously Presented) A single-layer or multi-layer blow-molded product comprising the ethylene-based polymer according to claim 1.

4. (Previously Presented) The single-layer or multi-layer blow-molded product according to claim 3 or claim 6, wherein the molded product is an oil drum, a 1000-L container, a gasoline tank, an industrial chemical can or a bottle container.

5. (Previously Presented) A single-layer or multi-layer pipe or pipe joint comprising the ethylene-based polymer according to claim 1.

6. (Previously Presented) A single-layer or multi-layer blow-molded product comprising the ethylene-based polymer obtained by the method according to claim 2.

7. (Previously Presented) A single-layer or multi-layer pipe or pipe joint comprising the ethylene-based polymer obtained by the method according to claim 2.

8. (**New**) An ethylene-based polymer which is a copolymer obtained from ethylene and a C3 to C10 α-olefin and satisfies the following requirements (i), (ii), (iii) and (iv) simultaneously:

(i) melt flow rate [MFR_2 (g/10 min)] under a loading of 2.16 kg at 190°C is in the range of 0.01 to 10,

(ii) melt tension [MT (g)] and the above melt flow rate [MFR_2 (g/10 min)] satisfy the following relationship:

$MT \geq 3.2 \times MFR_2^{-0.55}$

(iii) an activation energy [Ea] of fluidization is less than 30 (KJ/mol), and

(iv) swell ratio is 1.36 or more,

wherein said ethylene-based polymer is obtained by copolymerizing ethylene with a C3 to C10 α-olefin, in the presence of a solid catalyst component carried on (C) a solid carrier:

(A1) a group 4 transition metal compound represented by the general formula [I] below,

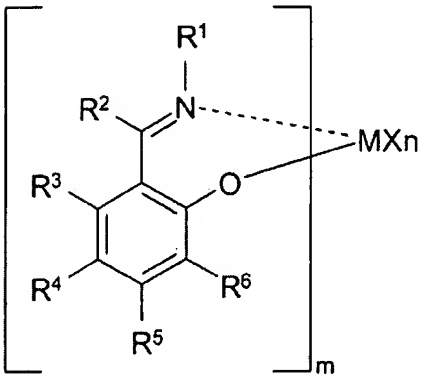
(A2) a group 4 transition metal compound represented by the general formula [II] below, and

(B) at least one compound selected from:

(b-1) an organometallic compound,

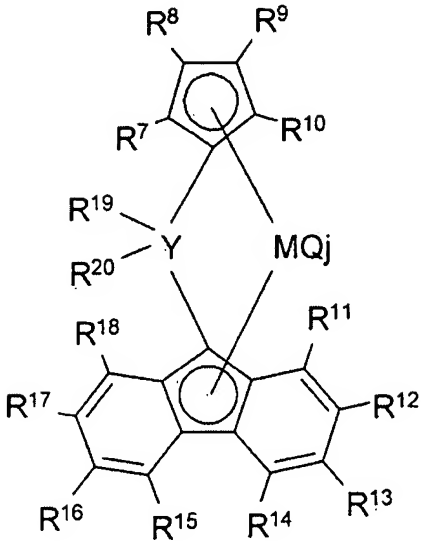
(b-2) an organoaluminum oxy compound, and

(b-3) a compound reacting with the transition metal compound (A1) or (A2) to form an ion pair,



[I]

where M represents a transition metal atom in the group 4 in the periodic table, m represents an integer of 1 to 4, R^1 represents a branched or linear aliphatic hydrocarbon group or an optionally substituted alicyclic hydrocarbon group, R^2 to R^6 may be the same or different and each represent a hydrogen atom, a halogen atom, a hydrocarbon group, a heterocyclic compound residue, an oxygen-containing group, a nitrogen-containing group, a boron-containing group, a sulfur-containing group, a phosphorus-containing group, a silicon-containing group, a germanium-containing group or a tin-containing group, two or more of which may be bound to one another to form a ring, and when m is 2, two of the groups represented by R^2 to R^6 may be bound to each other provided that R^1's shall not be bound to each other, and n is a number satisfying the valence of M, X represents a hydrogen atom, a halogen atom, a hydrocarbon group, an oxygen-containing group, a sulfur-containing group, a nitrogen-containing group, a boron-containing group, an aluminum-containing group, a phosphorus-containing group, a halogen-containing group, a heterocyclic compound residue, a silicon-containing group, a germanium-containing group or a tin-containing group, and when n is 2 or more, a plurality of groups represented by X's may be the same or different, and a plurality of groups represented by X's may be bound to one another to form a ring,



[II]

where R^7 to R^{20} are selected from hydrogen, a hydrocarbon group and a silicon-containing group, and may be the same or different, adjacent substituents R^7 to R^{20} may be bound to each other to form a ring, M is a group 4 transition metal atom, Y is a group 14 atom, Q may be selected in the same or different combination from a halogen, a hydrocarbon group, an anion ligand, and a neutral ligand capable of coordination with a lone pair of electrons, j is an integer of 1 to 4, at least one of R^{19} and R^{20} is an unsubstituted aryl group or a substituted aryl group, and when both R^{19} and R^{20} are either unsubstituted aryl groups or substituted aryl groups, R^{19} and R^{20} may be the same or different.